

Attorney Docket: K-2081
S.N.: 10/766,396

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A zero centerline toolholder assembly for performing a machining operation on a work piece, comprising:

a toolholder having a centerline, LT; and

a cutting insert having a nose radius with a center, RC, the cutting insert mounted to said toolholder,

wherein said center, RC, of the nose radius of said cutting insert is aligned with the centerline, LT, of said toolholder, and

wherein said centerline, LT, of said toolholder is aligned at a single, fixed, non-zero angle, δ , with respect to an axis, P, that is substantially perpendicular to a longitudinal axis, LW, of a work piece based on a geometry of the cutting insert for the duration of the machining operation on the work piece.

2. (Original) The toolholder assembly of Claim 1, wherein said non-zero angle is between about twenty-five degrees and about forty-five degrees.

3. (Original) The toolholder assembly of Claim 1, wherein said toolholder assembly has a tool length of approximately 80 to 120mm.

4. (Original) The toolholder assembly of Claim 1, wherein said centerline, LT, of said toolholder is substantially aligned with a rotational axis, CT₂, of said toolholder assembly.

5. (Currently Amended) A zero centerline toolholder assembly for performing a machining operation on a work piece, comprising:

a tool spindle rotatably mounted to a spindle housing of a tool rest;

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a toolholder mounted within said tool spindle, said toolholder having a centerline, LT; and

a cutting insert having a nose radius with a center, RC, the cutting insert mounted in an insert pocket of said toolholder,

wherein said center, RC, of the nose radius of said cutting insert lies on said centerline, LT, of said toolholder, and

wherein said centerline, LT, of said toolholder is aligned at a single, fixed, non-zero angle, δ , with respect to an axis, P, that is substantially perpendicular to a longitudinal axis, LW, of a work piece based on a geometry of the cutting insert for the duration of the machining operation on the work piece.

6. (Original) The cutting tool of Claim 5, wherein said non-zero angle is between about twenty-five degrees and about forty-five degrees.

7. (Original) The cutting tool of Claim 5, wherein said toolholder assembly has a tool length of approximately 80 to 120mm.

8. (Original) The toolholder assembly of Claim 5, wherein said centerline, LT, of said toolholder is substantially aligned with a rotational axis, CT₂, of said toolholder assembly.

9. (Currently Amended) A method of forming a zero centerline toolholder assembly for performing a machining operation on a work piece, comprising:

aligning a center, RC, of a nose radius of a cutting insert with a centerline, LT, of a toolholder; and

aligning the centerline, LT, of the toolholder at a single, fixed, non-zero angle, δ , with respect to an axis, P, that is substantially perpendicular to a longitudinal axis, LW, of a work piece based on a geometry of the cutting insert for the duration of the machining operation on the work piece.

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10. (Original) The method of Claim 9, wherein said non-zero angle is between about twenty-five degrees and about forty-five degrees.

11. (Original) The method of Claim 9, wherein said toolholder assembly has a tool length of approximately 80 to 120mm.

12. (Original) The method of Claim 9, further including the step of aligning said centerline, LT, of said toolholder with a rotational axis, CT₂, of said toolholder assembly.

13. (Previously Presented) The method of Claim 9, further comprising the step of mounting said toolholder within a tool spindle.

14. (Previously Presented) The method of Claim 13, further comprising the step of rotatably mounting said tool spindle to a spindle housing of a tool rest.

15. (Previously Presented) The toolholder assembly of Claim 1, wherein said centerline, LT, of said toolholder is aligned in a direction away from a direction of cutting of said work piece.

16. (Previously Presented) The toolholder assembly of Claim 5, wherein said centerline, LT, of said toolholder is aligned in a direction away from a direction of cutting of said work piece.

17. (Previously Presented) The method of Claim 9, wherein said centerline, LT, of said toolholder is aligned in a direction away from a direction of cutting of said workpiece.